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COMPRESSION BANDAGE

Abstract:

The present invention relates to a compression bandage, such as for ankle joints knees and thighs, for quickly take good care of sprainings, leading-string injuries and interior extravasations of blood, whereby the bandage is composed of a preformed, non-elastic, casing being possible to open (1), which is provided with non-elastic variable sealing devices (2, 4).

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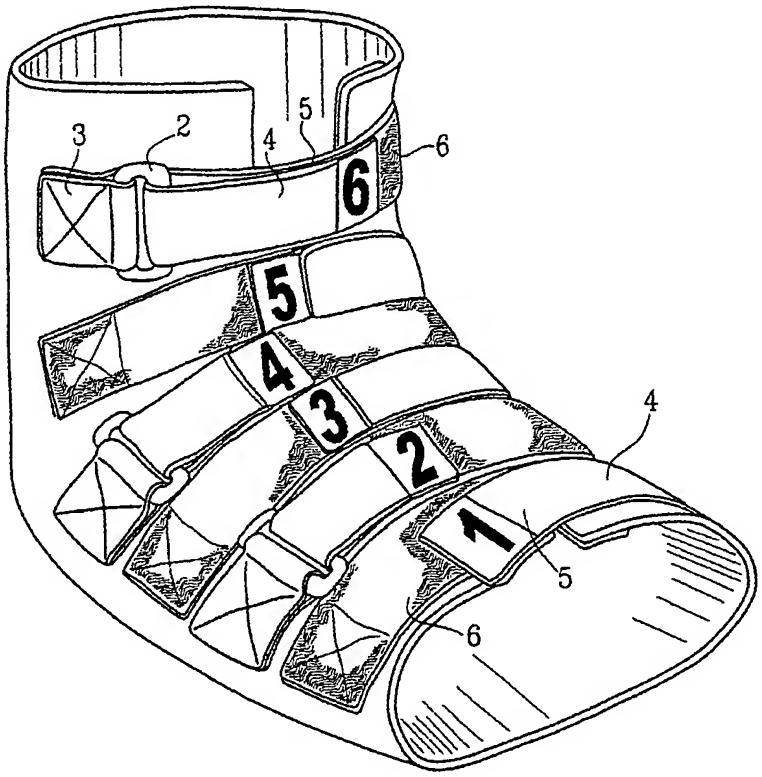
(54) Title: COMPRESSION BANDAGE




(57) Abstract: The present invention relates to a compression bandage, such as for ankle joints knees and thighs, for quickly take good care of sprainings, leading-string injuries and interior extravasations of blood, whereby the bandage is composed of a preformed, non-elastic, casing being possible to open (1), which is provided with non-elastic variable sealing devices (2, 4).

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IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

# TITLE
# COMPRESSION BANDAGE

## DESCRIPTION

Technical area

The present invention relates to a compression bandage, such as for ankle-joints, knees and thighs, for quickly taking good care of spraining, leading-strings injuries and interior extravasations of blood.

The object of the present invention is to achieve a pressure or compression bandage for quickly preventing substantial extravasations of blood in injured joints and extremities.

The background of the invention

Originally, at sprainings, it was considered sufficient to put a supporting bandage for a dilated ligament and surrounding musculature, to facilitate keeping the joint and increase the stability. Such bandages were of band type and were elastic. However, it was shown that any real mitigation and prevention of pain and additional extravasation of blood in the joint injured did not occur, but in principle, it was possible to consider the bandage as ineffective.

Later experiences have shown that quick treatment of sprained joints and other injuries leading to extravasation of blood by means of establishing a pressure bandage, leads to a very rapid healing and rehabilitation. Thereby it is very important that a tightened bandage is very firmly put within the course of some minute to give an effect in this aspect. Hereby the problem is to apply the correct pressure over a surface/area being sufficiently large enough on the joint to be treated. If bandage of band type is used, a particular education is required to be able to correctly put a bandage and accordingly obtain the right effect. Thereby the band should also be non-elastic. If the bandage is incorrectly applied, the consequences may be huge with a very extended rehabilitation time.

It is also known heating bandages for knee-joints comprising a wrapping adjusted for the knee-joint comprising a foam plastic/foam rubber laminate for achieving heat or maintain heat, which facilitates softening of the cartilage of the knee-joint, which is substantial for an adequate motion of the joint.

US-A-5,743,866 describes a bandage for immobilization and support of the members injured (an orthosis), which in no way has to do with the bleeding compression of muscles and ligament. A knee orthosis should often be used for support of tissues and for stiffening of a joint and should thereby also admit flexure of the orthosis itself, for instance during sports exercising, training and walking. The primary task of the drawstrings in an orthosis is to hold the orthosis close next to the leg for best effect in the control of the motion in the knee-joint as well as, in some cases, limit the over-mobility in the knee joint. To admit flexure implies that the orthosis is elastic. Thus the purpose is not to obtain a pressure preventing a bleeding.

The bandage according to US-A-5,743,866 is described in the text in a number of places as being tubular bandage, which also indicates the big difference in comparison to the present pressure bandage. Tubular supports and immobilization bandages (orthoses) have been present on the market since the 1950s. The bandage according to the U.S. Patent Publication shows moreover short straining belts, which excludes the possibility to obtain a pressure for treatment of a bleeding injury.

The bandage according to US-A-5,743,866 is applied over the foot and is drawn up over the knee to be treated. At this type of application, there is a risk that an injury in the knee should grow worse with increased bleeding, as a consequence of the movement at the threading-on of the orthosis/bandage, in the case that it is used for treatment of a bleeding injury which is the object of the present bandage. This shows, leaving no room for doubt, that the bandage according to this U.S. Patent Publication is not an acute bandage, but in short an orthosis.

The problem today is to obtain correct bandaging at joint injuries and the like, where an interior blood shedding occurs, such as for instance at so-called blood clot after

hemorrhage in thigh.

Description of the present invention

It has now surprisingly been shown possible to solve this problem by means of the present invention, which is characterized in that the bandage is composed of a preformed, non-elastic, casing possible to open, which casing is provided with non-elastic variable sealing devices.

Further characteristics are evident from the accompanying claims.

By means of the present invention it is obtained, that with a few preformed bandages, it is possible to treat the most occurring joint injuries and the like, within a very short time without any particular previous education. It is important that the requirement of education is small since such injuries, often sports injuries, may occur in all possible contexts, such as everything from different boll games in the youth series to matches in the competitive sports series, where in the former case, there is often a very limited education level concerning sports injuries. Further the individual sports practicer may easily apply the bandage. Hereby, sports practicers should be placed on an equal foot with all others which may get into this type of injuries, such as people moving in beaten terrain, such as hunters and forestry people, farmers and others.

A pressure bandage shall not, to be effective, admit such flexures as normally appear for instance in a knee-joint, and the present completely non-elastic bandage can therefore not be found in the cited patent publication. By being non-elastic, it can neither be used as an orthosis.

The present bandage is basically non-tubular, but is a pressure plate with non-elastic belts, which are tightened for exerting a pressure.

The present bandage is brought on the part injured (thigh, knee or foot) and is tightened, whereby a pressure over the area injured is immediately obtained, without any risk for that the part of the body injured being exposed to movement.

Use of the present pressure bandage has also proven that a massive so-called blood clot after hemorrhage in thigh, i.e. a major blood shedding in the thigh muscle after for instance knee collision during a football game, can heal-out in two to three days.

The present bandage may also be completed with a separate pressure plate/compression plate which means that a specific pressure is exercised on the area injured.

The bandage according to the present invention will be described with reference to some preferred embodiments shown thereof in the enclosed drawing, however without being limited to this. In the drawing

Fig. 1 shows an ankle-joint bandage in perspective;
Fig. 2 shows a knee-joint bandage in perspective;
Fig. 3 shows a thigh bandage in perspective; and
Fig. 4 shows a cut through a bandage according to Figs. 1-3

With reference to fig.1, 1 denotes a formed casing which has the form of a foot, and which is manufactured of a flexible material, such as so-called beaver nylon, being a strong non-elastic woven material of polymer thread. At the inside of the casing 1 a number of loops 2 are arranged in their respective attachments 3, which attachments 3 is fixedly sown to the casing 1, every second time on one side and every second time on the other side so that every other loop is on the right and every other loop is on the left handside. Bands 4 are arranged across the casing 1 in a level with the respective loop 2, which bands 4 are also manufactured of a non-elastic material and which bands partly show a part 5 with a structure of velcro closing, partly a part 6 with adherent weave for velcro closing. The respective band 4 is appropriately provided with numbers, which state the order in which they should be tighten for obtaining best possible pressure action on a foot introduced in the casing 1. The casing 1 may be completely opened by means of releasing the all bands, whereby a foot injured may easily be put in the casing 1, after which the bands 4 are introduced in their respective loops 2, and are tightened to a maximum tension. For increasing the contact of the bandage, a support plate in form of a foam rubber/foam plastic disc 7 may be introduced in the bandage, as appears

in fig.4, whereby the casing 1 is formed double for admitting introduction between two layers in the casing 1. By the design shown with band-loop every second time on one side and every second time on the other side, a bandage is not bound for a right or a left foot, respectively.

With reference to fig. 2 a casing 1 is shown again having a number of transverse bands 4 provided with velcro closings 5 and adherent weave 6 for velcro closings, respectively, and arranged to be thread through the loops 2, whereby the loops 2 are attached in the attachments 3. For improving the comfort at use the casing 1 is provided with a through-going hole 8 for a kneecap. Hereby the bands 4 are adjusted to the hole opening so that a overlap of this does not occur.

With reference to fig.3 another casing 1 is shown having a number of transverse bands 4 provided with velcro closings 5 and adherent weave 6 for velcro closings, respectively, and arranged to be thread through the loops 2, whereby the loops 2 are attached in the attachments 3. This bandage, being intended to limit a bleeding in a thigh, is thereby not provided with a through-going hole. The casing 1 is also somewhat longer in reality than the casing 1 intended for the knee-joint.

This bandage may also be designed for arm-joints and arm musculature in the same way, whereby the important thing is still that the bandage is non-elastic and that it is simple to be brought in place and tightened, even without any help.

## CLAIMS

1. Compression bandage, such as for ankle joints, knees and thighs, for quickly take good care of spraining, leading-strings injuries and interior extravasations of blood, **characterised in,**

that the bandage is composed of a preformed, non-elastic, casing being possible to open (1), which is provided with non-elastic variable sealing devices (2, 4).

2. Bandage as claimed in claim 1,

**characterised in,**

that the variable sealing devices (2, 4) are composed of partly a fixed arranged loop (2) to the casing (1), partly a non-elastic band (4) provided with velcro closings (5) and adherent weave (6) for velcro closings, whereby the band (4) is arranged to be thread through said loop (2) and be fasten against itself by means of said velcro closing (5) and adherent weave (6).

3. Bandage as claimed in claim 1-2,

**characterised in,**

that the sealing devices (2, 4) are numbered for admitting correct application of the bandage concerning pressure distribution/application.

4. Bandage as claimed in claim 1-3,

**characterised in,**

that the casing (1) is preformed for a foot for the treatment of foot-/ankle joints injuries.

5. Bandage as claimed in claim 1-3,

**characterised in,**

that the casing is preformed for adjustment to a knee-joint, whereby it is provided with a hole through (8) for a kneecap.

6. Bandage according to one or morel of the claims,

**characterised in,**

that the casing (1) is composed of a double weave for admitting the introduction of a supporting element (7) in the formed space between the double weave.

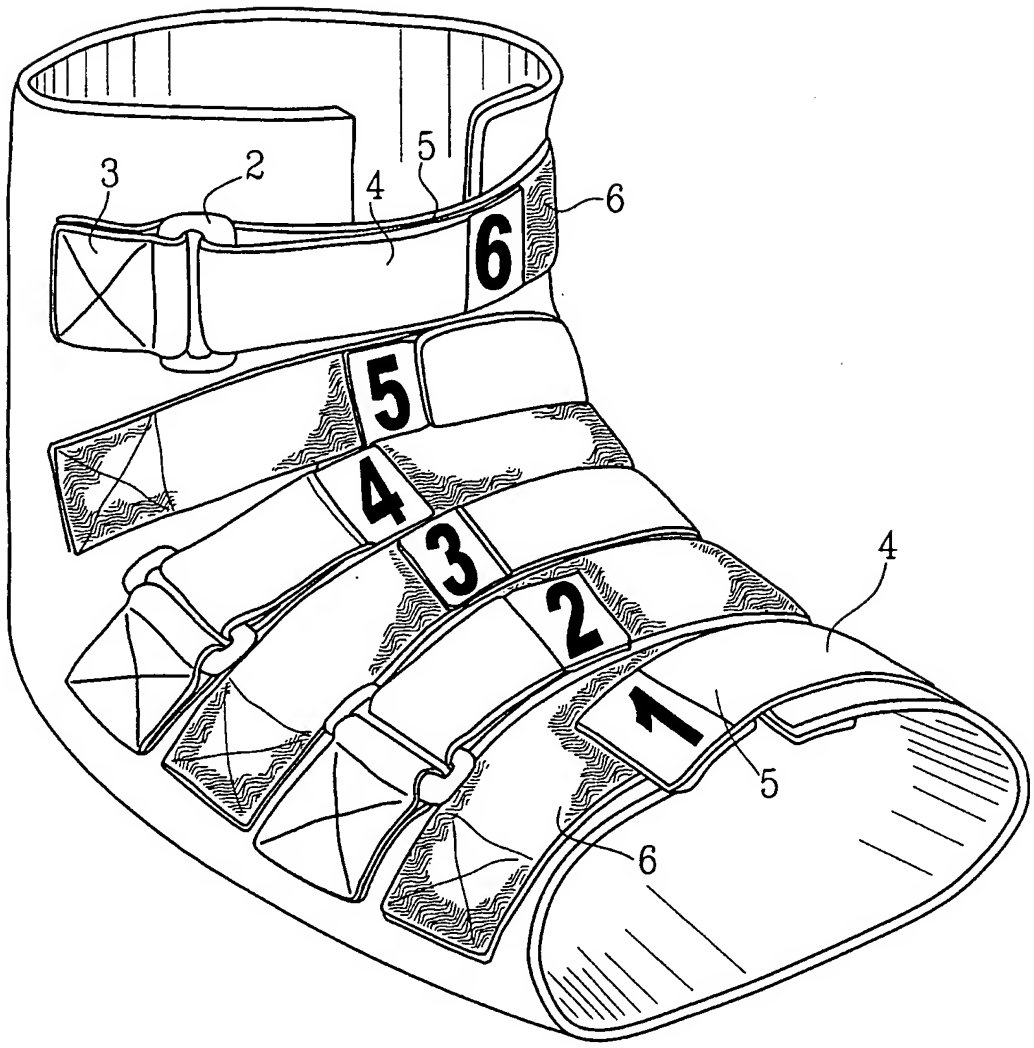


FIG.1

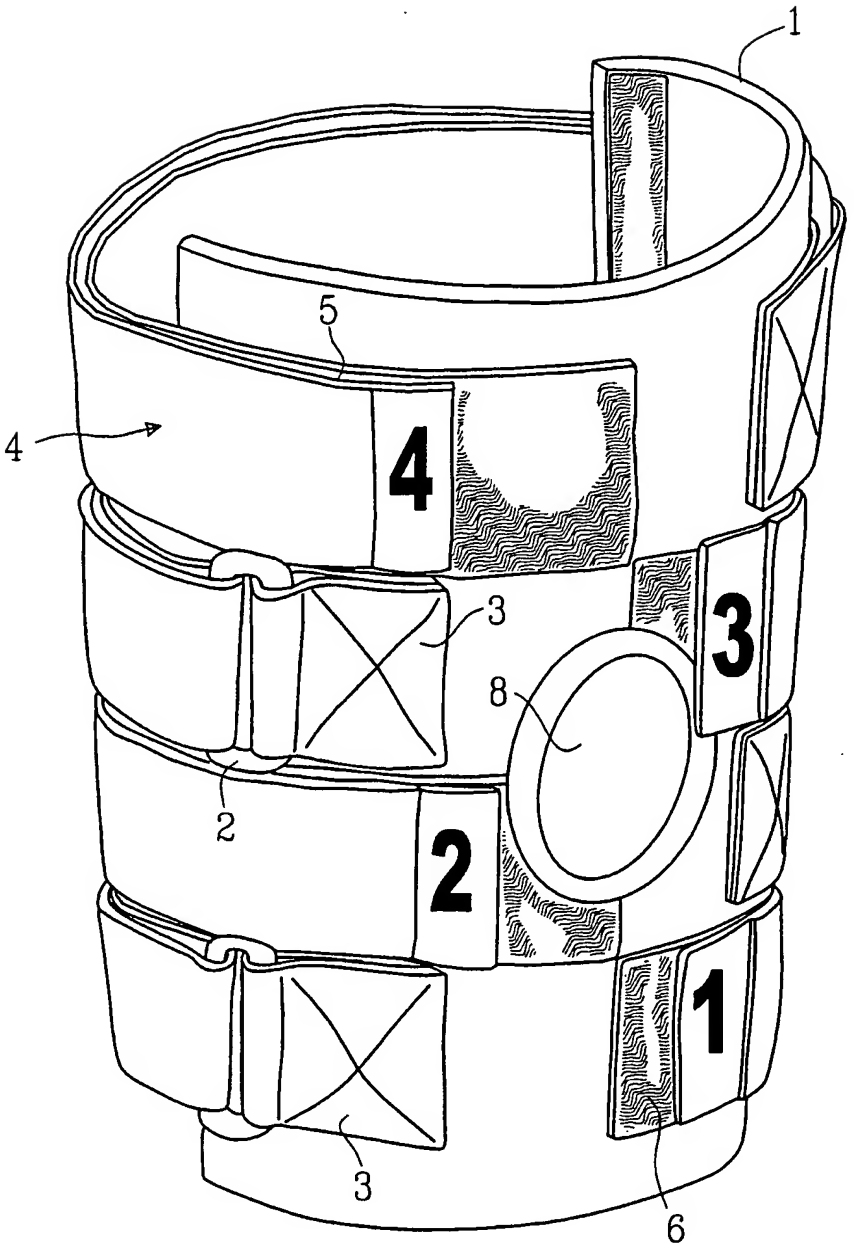


FIG.2

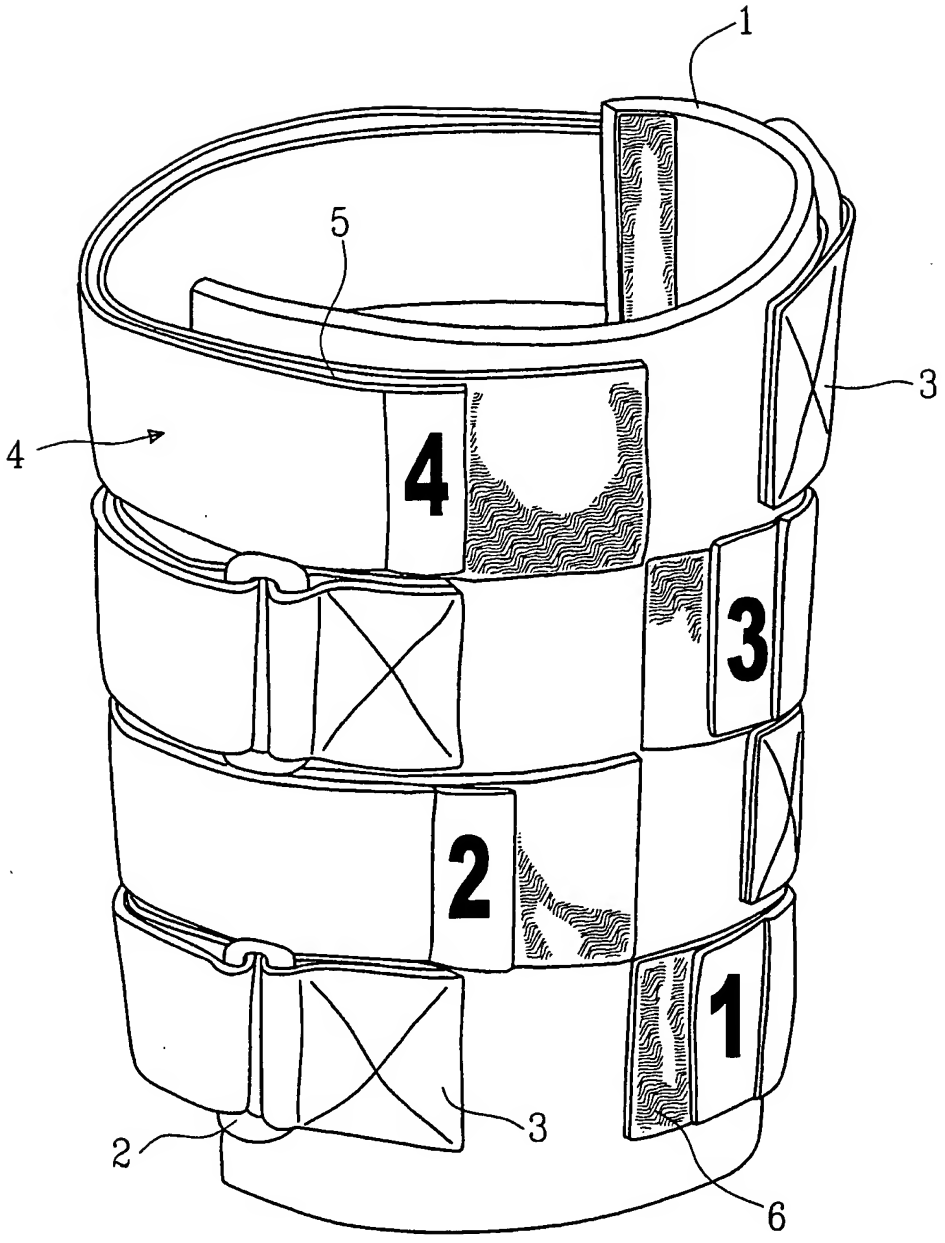


FIG.3

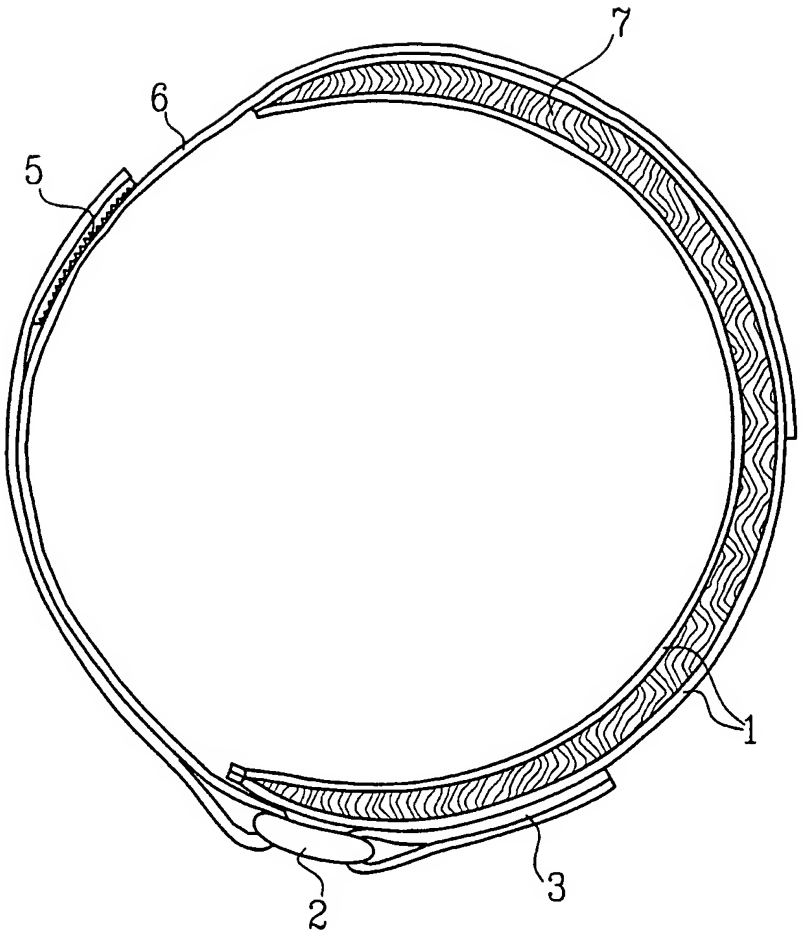


FIG.4

# INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 00/01364

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A61F 13/00 // A61F 13/06
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| X | US 5743866 A (BAUERFEIND ET AL), 28 April 1998 (28.04.98), column 1, line 59 - column 2, line 6, figure 1 | 1-6 |
| | -- | |
| A | GB 2241647 A (TOKYO EIZAL LABORATORY CO. LTD), 11 Sept 1991 (11.09.91), figure 1 | 5 |
| | -- | |
| A | US 4366813 A (NELSON), 4 January 1983 (04.01.83), column 2, line 22 - line 29, figure 2 | 6 |
| | -- | |
| | -------- | |

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" erlier document but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
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"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

| Date of the actual completion of the international search | Date of mailing of the international search report |
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| Name and mailing address of the ISA<br>Swedish Patent Office<br>Box 5055, S-102 42 STOCKHOLM<br>Facsimile No. +46 8 666 02 86 | Authorized officer<br>Ingrid Falk/CF<br>Telephone No. +46 8 782 25 00 |

# INTERNATIONAL SEARCH REPORT

Information on patent family members

01/08/00

International application No.
PCT/SE 00/01364

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
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| | | EP 0762858 A | 19/03/97 |
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| | | US 5154690 A | 13/10/92 |
| US 4366813 A | 04/01/83 | NONE | |